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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,918	05/15/2001	Hyung-gon Noh	1568.1013	7552

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

TSANG FOSTER, SUSY N

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/03/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,918

Applicant(s)

NOH, HYUNG-GON

Examiner

Susy N Tsang-Foster

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period of Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-7,9-11 and 14-16 is/are allowed.
- 6) ☒ Claim(s) 12,13,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to the amendment filed on 7/21/2003. Claims 1, 3, 7, 9, and 12 have been amended and claims 2 and 8 have been cancelled. Claims 1, 3-7, and 9-18 are pending. The indication of allowable subject matter in claims 12, 13, 17, and 18 is withdrawn in view of newly discovered art. Claims 1, 3-7, 9-11, and 14-16 are allowed. This Office Action is made non-final as new grounds of rejection are made for claims 12, 13, 17, and 18 that are not necessitated by applicant's amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12 and 13 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Park et al. (US 2002/0136958 A1).

The product-by-process limitations of claims 12 and 13 are not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (see In re Thorpe, 227 USPQ 964, (CAFC 1985), In re Brown, 173 USPQ 685 (CCPA 1972), and In re Marosi, 218 USPQ 289, 292-293 (CAFC 1983)).

Park et al. disclose a lithium battery that is formed by dissolving a gelling agent into organic liquid electrolytes and then gelling the precursor in situ at elevated temperatures to form a gel polymer electrolyte after pouring it into a battery case that contains a cathode, an anode, and a separator (see abstract and paragraph 10).

The gel polymer electrolyte is the reaction product of 1) a nitrogen containing compound such as a polymer, copolymer, oligomer or monomers containing primary, secondary, or tertiary amines and 2) an epoxy-group containing polymer or oligomer (prepolymer) that is capable of reacting with the nitrogen containing compound (see abstract and paragraph 10).

5. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (US 2002/0136958 A1).

Park et al. disclose a lithium battery that is formed by dissolving a gelling agent into organic liquid electrolytes and then gelling the precursor in situ at elevated temperatures to form

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a gel polymer electrolyte after pouring it into a battery case that contains a cathode, an anode, and a separator (see abstract and paragraph 10). After the precursor liquid is poured into the battery case, the precursor is thermally polymerized at about 65 °C (see paragraph 10). The precursor solution can also be heated between about 30 °C to about 130 °C (see paragraph 9).

The gel polymer electrolyte is the reaction product of 1) a nitrogen containing compound such as a polymer, copolymer, oligomer or monomers containing primary, secondary, or tertiary amines and 2) an epoxy-group containing polymer or oligomer (prepolymer) that is capable of reacting with the nitrogen containing compound (see abstract and paragraph 10).

Park et al. do not disclose first mixing a prepolymer for forming an epoxy resin and an amine to form a first solution, mixing a lithium salt and an organic solvent to form a second solution, and then mixing the first and second solutions to obtain an electrolyte gel solution. Instead, Park et al. disclose dissolving the gel electrolyte precursors in an organic electrolyte solution that contains the lithium salt and organic solvent and does not disclose forming a separate solution containing the gel electrolyte precursors and then adding the separate solution to the organic electrolyte solution.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to first mix a prepolymer for forming an epoxy resin and an amine to form a first solution, mixing a lithium salt and an organic solvent to form a second solution, and then mixing the first and second solutions to obtain an electrolyte gel solution because the courts have

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held that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results, In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946).

Allowable Subject Matter

6. Claims 1, 3-7, 9-11, and 14-16 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:

The closest prior art of record, Peng et al., "Ionic conductivity of epoxy network/polyethylene-glycol-lithium perchlorate complex IPN system", Chinese Journal of Polymer Science (1990), 8(4), pp. 342-6 discloses a polymeric solid electrolyte composed of bisphenol A epoxy resin/polyethylene glycol containing LiClO₄ but the reference does not disclose, teach or suggest that the epoxy resin in the polymer electrolyte is formed from a prepolymer given by formula 1 recited in claims 1, 3-7, 9-11, and 14-16.

Conclusion

Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (703) 305-0588. The examiner can normally be reached on Monday through Thursday from 9:30 AM to 8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.

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The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After-Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

st/ *Susy Tsang-Foster*

Susy Tsang-Foster
Primary Examiner
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